Data Issues Near and Far

Frank Sietzen, Jr.

With NASA under pressure to resuscitate the ailing Landsat program, an executive order to build a federal cadastre, and FGDC trying to re-energize the NSDI, spatial data proponents have a big stake in summer policy discussions.

The National Aeronautics and Space Administration (NASA) continues to wrestle with the Landsat Data Continuity Mission (LDCM) and the Federal Geographic Data Committee is working on a new initiative to advance the National Spatial Data Infrastructure (NSDI). Sound like everything old is new again? Not exactly. Also underway are two nascent cadastral efforts, one by the federal government and the other by the State of California. These two unrelated inventories will attempt to catalog the vast land holdings maintained by Uncle Sam and the Golden State. Along the way, public officials may be in for a surprise as they discover real-estate holdings that they never knew existed. Before delving into the issue of hot properties, though, let's revisit the ongoing saga of LDCM.

A Continuing Saga

Bringing this issue to the forefront was a a recent letter from Management Association for Private Photogrammetric Surveyors (MAPPS) Executive Director John M. Palatiello to Dr. John Marburger, President Bush's chief science advisor and director of the White House Office of Science and Technology Policy. In his letter, Palatiello diplomatically questions NASA's foot-dragging in replacing Landsat 7.

MAPPS supports the federal aim of continuing to acquire Landsat imagery. But the NASA–U.S. Geological Survey (USGS) partnership for Landsat continuity appears to be uncertain of its future direction. And as Palatiello pointed out, time is running out. It's been more than a year since Landsat 7's Enhanced Thematic Mapper Plus began to produce spurious data and a determination was made that the sensor's malfunction was irreversible.

The Landsat program had been among NASA's more-successful ventures. Its first satellite, Landsat 1, was launched into space in 1972. Landsat 7, the most recent in the series, went aloft in April 1999, and had a design-life expectancy of five years.

Plan for the Future. The specific issue of planning for Landsat's future goes back to the mid-1990s. Then NASA Administrator Daniel S. Goldin had pledged to continue NASA's participation in the program and began seeking to define the specifications and systems of its follow-on spacecraft. The Land Remote Sensing Policy Act of 1992 (LRSPA), enacted just as Goldin was taking office, set in motion the formal process by which the space agency and USGS continued the Landsat mission. Although the first six Landsat spacecraft were all government owned and developed, the law expressed a preference for "private-sector funding and management" of whatever followed Landsat 7.

Enter the Bush administration in 2001. Goldin's replacement, Sean O'Keefe, came into his post about the same time as the new administration was deciding that the government's role in all of this should be as a data purchaser, not a spacecraft provider. That function, the administration said, would best be served by commercial satellite system providers. But at the same time, NASA and USGS wanted to be assured that the type of data that would be generated by private spacecraft was of the quality and caliber that had been obtained from not just Landsat 7, but from the entire Landsat spacecraft series across its three decades of performance. Thus was born the LDCM.

LRSPA set twin goals for LDCM. It said the resulting acquisition had to "serve the civilian, national security, commercial, and foreign policy interests of the United States," and secondly "incorporate system enhancements which may potentially yield a system that is less expensive to build and operate, and more responsive to users." Of course, none of this was industrial policy. It just sounded like it.

One is a Lonely Number. NASA's Office of Earth Science, which manages the agency's entire remote sensing portfolio, sent out a request for proposals for LDCM in 2004. One vendor responded. Resource-21 proposed a fully commercial solution that included a suite of sensors that would continue the Landsat multispectral data reconnaissance of the Earth. But NASA-USGS rejected the proposal based on the overall system design proposal and the associated cost, according to NASA sources. Trouble is, no other offers were on the table.

Noting this in his letter, Palatiello urged NASA to relinquish its role in the

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program to the National Oceanic and Atmospheric Administration, which, he noted, has been expanding its role in Earth observation — an interest that matches its track record.

A letter signed by seven university science leaders in the remote-sensing field also lamented the delay in the Landsat data acquisition process.

"NASA and USGS have spent over three years on the LDCM process, and from our perspective, any possible alternatives to the LDCM concept likely could only be achieved in a 5 to 10 year time frame," the letter stated. They called for the two agencies to "immediately demonstrate and act upon a realistic plan that maintains the Landsat data record continuity, with the high-quality observations that meet science needs."

So now what?

What's NASA's Next Move?

Senior space agency sources tell *Geospatial Solutions* that several alternative plans are once again being reviewed, although they would prefer not to say it publicly. One option is a completely commercial solution for Landsat data continuity, in which the government plays no real role. A second choice requires crafting some form of a public-private partnership in which the federal government would basically archive and make the Landsat-quality data available, but it would be derived from a commercial operator using a commercial satellite platform. A third idea is to open the process to include a foreign imagery provider, but the international element would be blended into something akin to a consortium. Last, our NASA source said, is a shared development program, with the resulting system to be operated by some form of government entity. The current preference, however, remains a commercial imagery solution that minimizes government involvement.

Time to Restructure. All of this comes on the eve of a massive reorganization at NASA, details of which were about to be unveiled as *Geospatial Solutions* went to press. When President Bush announced his new package of space-exploration proposals on January 14, 2004, he directed NASA to review those programs that didn't support his vision of sending astronauts back to the moon and on to other places in the solar system. Those that did not, NASA Administrator Sean O'Keefe told *Geospatial Solutions,* could be trimmed back, moved to another federal agency, or eliminated entirely.

On June 16, a White House panel that reviewed ways to implement the Bush space policy recommended a reorganization of NASA along those lines. O'Keefe's response, as we went to press, was to realign the elements of his agency to match Bush's exploration vision and mission.

Among the offices considered for elimination is the Office of Earth Science — the managers of LDCM and the whole remote-sensing enterprise. Earth Science isn't going away, our NASA source suggested. It would, our source said, be folded into the Space Science directorate run by Dr. Ed Weiler. That shop would manage and operate the robotic exploration of the moon and Mars. It currently manages the pair of twin rovers on Mars, *Spirit* and *Opportunity*.

In such a competition, would remote sensing fare well as a priority? NASA sources hint that MAPPS' call for removing NASA from LDCM is getting a serious review.

Stay tuned. A decision may well be right around the corner.

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Meanwhile, Back on Earth

While the struggle to continue the Landsat Earth observing mission continues, Uncle Sam has embarked on an effort to inventory just whatever it is that Landsat sees. On February 4, President Bush signed executive Order 13327 concerning Federal Real Property Asset Management. The order requires the establishment of an inventory of all federal government land holdings.

For the Bush administration, the federal cadastre has wide-ranging implications — from better understanding federal lands for future land-acquisition policies, to elements of homeland security and national defense. After all, you can't protect what you don't know exists.

Cadastre Task Force. To help make the federal cadastre a reality, MAPPS President Ken Fleming has put together a MAPPS Federal Cadastre Task Force. The organization, after all, helped draft Bush's executive order. Now it hopes to help craft the policy strategy and implementation plan.

Fleming appointed seven industry leaders to the group. Susan Marlow of Smart Data Strategies will be chair, along with Tim Hopkins of The Sidwell Company, Silas Suazo of Bohannan-Huston, Rodger Phelps of 3001, Tom McCullough of InterMountain Aerial Surveys, Kevin Daughtery of ESRI, and Roger Crystal of Titan, who will act as the board's liaison.

The task force will make its first presentation on the issue at the MAPPS Summer Meeting in Big Sky, Montana, in July. At the same meeting, Bureau of Land Management Deputy Director Jim Hughes will give a status report on the federal cadastre's progress. And as *Geospatial Solutions*' went to press, Palatiello was set to brief Representative Adam Putnam's (R-FL) Government Oversight Subcommittee about task force objectives.

The Governator. While Uncle Sam moves into its inventory, California isn't far behind. On May 11, Governor Schwarzenegger signed Executive Order S-10-04, calling for his own statewide cadastre. For Schwarzenegger, the underlying rationale is to identify holdings that could be sold off for cash, bolstering that state's budget-strapped accounts. A partial inventory thus far of the state's holdings suggests many such assets. Among the holdings to be inventoried:

- 33 university campuses containing 6,300 buildings and 69 million square feet of structural space
- 50,000 lane miles of highways and 12,000 bridges
- 33 adult prisons, nine institutions for youth offenders, and four correctional hospitals
- 11 forensic laboratories and one for DNA research
- 238 forest fire stations and 28 air-attack and helitack bases
- 277 park units covering nearly 1.5 million acres
- 210 Department of Motor Vehicle and 139 Highway Patrol Offices
- 32 million square feet of leased and owned office space.

The state will spend $2.8 million on the inventory. Whatever is deemed surplus could be sold off quickly, perhaps starting this summer.

Finally, at FGDC

As if all of this isn't enough to get your geospatial heart thumping this summer, the FGDC is making progress, according to Staff Director Ivan B. DeLoatch. Recently, DeLoatch sent out a missive on its Future Directions Initiative. The initiative has as it goal the development of a national strategy and action plan to advance the NSDI. The NSDI has set a series of target goals, according to DeLoatch. These include

- Forging Partnerships with Purpose — Crafting a governance model that includes all of the GIS stakeholders
- Making a Real Framework — Generating framework data themes for all 50 states
- Developing the Message — Making a business case for all sectors.

All are part of the effort to establish a vision of the NSDI in the next decade. "Just calling it *The National Map* isn't enough," DeLoatch told a Future Directions Forum in April. "The vision needs to be specific, it defines us; it needs to be strong," he added. The forum worked on interim steps to the vision and milestone targets that could be set and met.

Landsat data, a national cadastre, FGDC Future Directions — all are works in progress, defining and being defined by an emerging industry.